

DOCUMENT RESUME

ED 335 704

CS 213 005

AUTHOR Raphael, Taffy E.; Boyd, Fenice B.
TITLE Synthesizing Information from Multiple Sources: A Descriptive Study of Elementary Students' Perceptions and Performance of Discourse Synthesis. Elementary Subjects Center Series No. 45.
INSTITUTION Center for the Learning and Teaching of Elementary Subjects, East Lansing, MI.
SPONS AGENCY Office of Educational Research and Improvement (ED), Washington, DC.
PUB DATE Sep 91
CONTRACT G0098C0226
NOTE 67p.
AVAILABLE FROM Center for the Learning and Teaching of Elementary Subjects, Institute for Research on Teaching, 252 Erickson Hall, Michigan State University, East Lansing, MI 48824-1034 (\$5.75).
PUB TYPE Reports - Research/Technical (143)
EDRS PRICE MF01/PC03 Plus Postage.
DESCRIPTORS *Cognitive Processes; Elementary School Students; Grade 4; Grade 5; Intermediate Grades; Reading Comprehension; *Reading Processes; Reading Research; *Reading Writing Relationship; *Synthesis; *Writing Processes
IDENTIFIERS *Discourse Synthesis

ABSTRACT

Two studies explored the nature of fourth- and fifth-grade students' abilities to synthesize information from multiple sources of text. The studies examined the ways in which elementary students approached a synthesis activity that involved reading two well-organized and related nonfiction articles, and then drawing upon that information as they wrote reports that synthesized and expanded upon the information. In the first study, fourth- and fifth-graders from two classrooms in an urban, neighborhood school were given passages about rock climbing and caving, or about polo and field hockey. They read and then wrote reports that drew on both topics. Results supported the existence of six inhibiting strategies: (1) using associative memory or recall of information from the sources; (2) audience insensitivity, seen in the number of students not setting a context for their paper; (3) overemphasizing background knowledge (digressing from topics); (4) copying from text in strategic (verbatim or paraphrasing) or random (verbatim) patterns; (5) narrowly identifying relevant information; and (6) writing a story. In the second study, students whose syntheses exhibited similar patterns were interviewed to determine their task impressions and how they had sought to achieve their goals. Findings suggested that despite any apparent lack of success in the ability to synthesize, most students appeared to be strategic in their approach. Their difficulties arose not from an inability to synthesize but from a different conception of the purpose of the activity itself. (A figure and 4 tables of data are included; 36 references and 2 appendixes containing the coding scheme for elaboration/integration/balance as well as student interviews are attached.) (Author/PRA)

IRT
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\$5.75

ED335704

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A DESCRIPTIVE STUDY OF
ELEMENTARY STUDENTS' PERCEPTIONS AND
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Taffy E. Raphael and Fenice B. Boyd



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Published by

The Center for the Learning and Teaching of Elementary Subjects
Institute for Research on Teaching
252 Erickson Hall
Michigan State University
East Lansing, Michigan 48824-1034

September 1991

This work is sponsored in part by the Center for the Learning and Teaching of Elementary Subjects, Institute for Research on Teaching, Michigan State University. The Center for the Learning and Teaching of Elementary Subjects is funded primarily by the Office of Educational Research and Improvement, U.S. Department of Education. The opinions expressed in this publication do not necessarily reflect the position, policy, or endorsement of the Office or Department (Cooperative Agreement No. G0098C0226).

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The work is designed to unfold in three phases, beginning with literature review and interview studies designed to elicit and synthesize the points of view of various stakeholders (representatives of the underlying academic disciplines, intellectual leaders and organizations concerned with curriculum and instruction in school subjects, classroom teachers, state- and district-level policymakers) concerning ideal curriculum, instruction, and evaluation practices in these five content areas at the elementary level. Phase II involves interview and observation methods designed to describe current practice, and in particular, best practice as observed in the classrooms of teachers believed to be outstanding. Phase II also involves analysis of curricula (both widely used curriculum series and distinctive curricula developed with special emphasis on conceptual understanding and higher order applications), as another approach to gathering information about current practices. In Phase III, models of ideal practice will be developed, based on what has been learned and synthesized from the first two phases, and will be tested through classroom intervention studies.

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Abstract

The research reported in this paper explores the nature of fourth- and fifth-grade students' abilities to synthesize information from multiple sources of text. The act of discourse synthesis is a hybrid of reading and writing, in which writers take information from texts through reading then transform this information as they create new texts through writing.

This report describes two studies that examined the ways in which elementary students approached a synthesis activity that involved reading two well-organized and related nonfiction articles then drew upon that information as they wrote reports that synthesized and expanded upon the information. In the first study, fourth- and fifth-graders from two classrooms in an urban, neighborhood school were given passages about rock climbing and caving, or about polo and field hockey. They read and then wrote reports that drew on both topics. Evidence from students' writing samples supported the existence of six inhibiting strategies: (1) using associative memory or recall of information from the sources; (2) audience insensitivity, seen in the number of students not setting a context for their paper; (3) overemphasizing background knowledge (i.e., digressing from topics); (4) copying from text in strategic (verbatim or paraphrasing) or random (verbatim) patterns, (5) narrowly identifying relevant information, and (6) writing a story.

In the second study, students whose syntheses exhibited similar patterns were interviewed to determine their task impressions and how they had sought to achieve their goals. The findings of the interviews suggest that despite any apparent lack of success of their ability to synthesize, most students appeared to be strategic in their approach. Their difficulties arose not from an inability to synthesize but from a more basic problem--a different conception of the purpose of the activity itself. Implications are discussed for both theory building and instructional practice.

**SYNTHESIZING INFORMATION FROM MULTIPLE SOURCES:
A DESCRIPTIVE STUDY OF ELEMENTARY STUDENTS' PERCEPTIONS
AND PERFORMANCE OF DISCOURSE SYNTHESIS¹**

Taffy E. Raphael and Fenice B. Boyd²

The importance of discourse in classroom learning cannot be underestimated. Nowhere is this more apparent than in recent discussions of the social nature of learning and the importance of shared language (e.g., Edwards & Mercer, 1987; Wertsch, 1991). Theorists within a social constructivist perspective have drawn on Vygotsky's general genetic law of cultural development (Vygotsky, 1978) that learning of concepts, strategies, and skills first occurs on a social plane before an individual internalizes that which is being learned. Classroom literacy instruction is one context that exemplifies this move from inter- to intrapsychological processing, as teachers make public particular strategies and approaches to literacy learning to facilitate students' appropriation of these strategies to meet various literacy goals. The processes by which an individual comes to internalize and "own" that which was once unknown has been described by Harre (1984) in his model of the "Vygotsky space." Gavelek (1990) has adapted Harre's model to describe this process in terms of classroom learning (see top half of Figure 1).

Gavelek's model illustrates learning from the inter- to the intrapsychological plane, from the public to the private domain, through the processes of appropriation, transformation, publication, and conventionalization. In this paper, we describe how students begin to appropriate and transform strategies relevant to the process of discourse synthesis, a term

¹Paper originally presented at the annual meeting of the American Educational Research Association, Chicago April, 1991.

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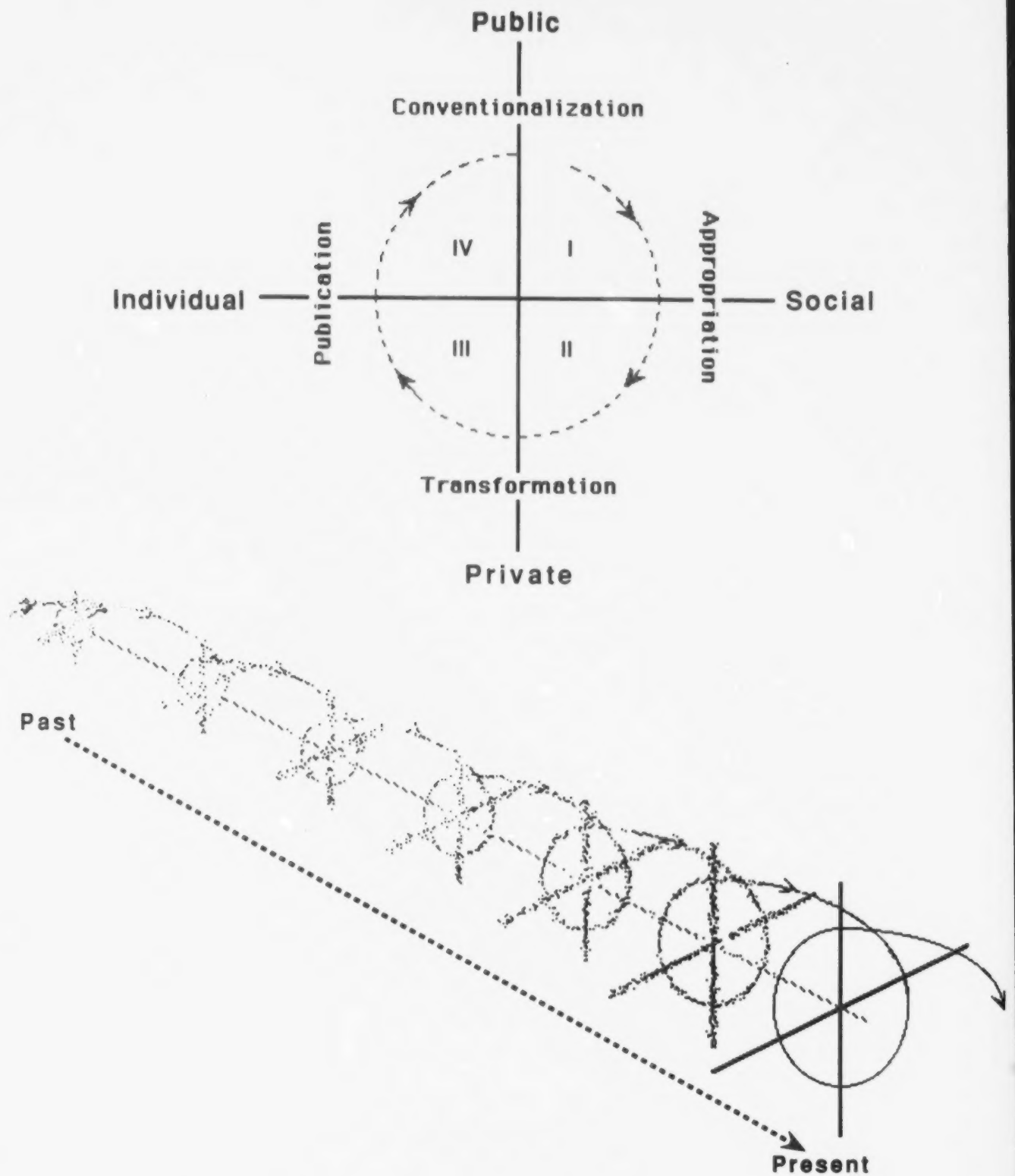


Figure 1. Gavelek's adaptations of the "Vygotsky space" model to classroom learning.

coined by Nancy Spivey (1991; Spivey & King, 1989) to describe the act in which writers engage

when they read more than one text . . . and draw from those texts in producing their own texts. . . . [It is] a hybrid act of literacy that entails both literate processes, reading and writing: A person is not only in the role of writer, composing a new, unique text, but is also in the role of reader, comprehending texts written by other writers. The writer constructs meaning *from* the texts that are read in order to construct meaning *for* the text that is being written. (1991, p. 702)

In the first quadrant of the model, discourse synthesis and its related strategies are made public by the teacher through modeling, describing, and other discourse processes. Through this social and public process, students begin the process of appropriating strategies (e.g., selection, integration, and elaboration) that underlie synthesis of information from multiple sources. For example, teachers may guide students through analyzing text, modeling and thinking aloud about important information within the text, and strategies for using that information to create syntheses: strategies such as identifying features related to text structure, audience sensitivity, and selection of content information. The teacher may draw from a variety of instructional activities such as comparing and contrasting two texts, representing ideas from text (e.g., through character maps and time lines), and responding to students' written texts. Students may talk with each other as well as with the teacher as they begin to appropriate taught strategies, in settings such as Author's Chair (Graves & Hansen, 1983), peer-editing sessions, and response groups. Thus, appropriation occurs as students move toward strategy use in individual activities.

Transformation occurs as students begin to use internalized strategies to achieve their own identified goals, moving from the second to the third quadrant. During this process, students are guided by their own "task impressions" (Spivey & King, 1989). In discourse synthesis, as in other cognitive processes, these task impressions may or may not be congruent with those of the

teacher. Such processes are difficult to observe and often must be inferred from written samples of students' work (i.e., in quadrant IV) or from interviews and informal conversations.

As students begin to make public their learning, moving from quadrants III to IV, they move back into the public domain, again making visible--perhaps through their written work or talk with other students--those strategies and concepts that were part of the public/social domain of quadrant I. However, these have now been appropriated and transformed by the learner. To complete the cycle, learners move from quadrant IV to I, conventionalizing what they have learned and continuing the learning process as conventionalized strategies are refined, or used in the service of other to-be-learned strategies. As depicted in the bottom half of Figure 1, Gavelek emphasizes the cyclical nature of this process. It is reiterated across time and contexts as students learn, for example, how to synthesize discourse through a range of instructional opportunities and in a variety of contexts.

Research in Discourse Synthesis

The study of discourse synthesis is valuable on multiple levels. First, since discourse synthesis is a complex process that continues to develop across the lifespan (Spivey, 1990; Spivey & King, 1989), its study reveals much about the nature of learners' and teachers' mutual and sometimes orthogonal task impressions. Second, it is an ecologically valid process both within school and beyond (McGinley, 1990). Third, the process itself is one that draws upon and integrates research in reading comprehension, writing, and the understanding of literacy activities (Greene, 1990).

Spivey's research (1990; Spivey & King, 1989) on discourse synthesis with middle school through college-aged students revealed developmental differences in predicted directions. Older students included more information overall, and their information was from higher levels of the text structure. Their texts showed more coherence and were generally more 'reader sensitive' in the way contexts were set than were the texts of younger students. Yet, earlier work suggests

that we cannot assume that the ability to synthesize is merely developmental, since less successful college students experienced difficulty in such tasks (Spivey, 1984).

Thus, one focus of the current study was to explore younger students' abilities to engage in discourse synthesis in written literacy, to begin to build an understanding of the early development of this ability. Yet, it may be naive merely to ask, Can younger students synthesize discourse from multiple sources? The act of discourse synthesis involves related, interconnected, and complex strategies. Writers often perform some form of organizational transformations, creating new text structures to convey the newly integrated information. They also make decisions about what information to include, selecting the relevant and discarding the less relevant. Finally, they connect information in ways that make their meaning coherent. This involves elaborating text information, determining information from beyond the texts (e.g., from their own knowledge) to include to meet their audiences needs, and providing links among the content available from the various sources. We must examine how to address students' needs as they engage in what may be one of the most difficult, yet critical aspects of subject-matter learning.

Related Strategy Research

Research suggests that the strategies of organizing, selecting, and connecting are particularly difficult for elementary school students. These students show less knowledge of how texts may be organized (Englert, Raphael, Fear, & Anderson, 1988; Englert, Stewart, & Hiebert, 1988), may be ill prepared to develop cohesive text (Garner & Gillingham, 1987), and have less knowledge of and agility in using different text structures for generating new texts (Englert, Raphael, & Anderson, in press). Further, elementary students show difficulties identifying conventional main ideas from text (Brown & Day, 1983; Winograd, 1984). Thus, one might predict that students engaged in such a complex activity will bring to the activity their own strategies and interpretations, or as Spivey and King (1989) note, their own task

impressions. These task impressions may provide insights into learners' processes of appropriation and transformation of learned strategies.

Despite the potential difficulties elementary students may have with discourse synthesis, it seems obvious that the foundations for later success begin at the lower grade levels. Based on a range of factors such as disparities between students' abilities to interact with narrative and expository text (Applebee, Langer, & Mullis, 1987; Dutcher, 1990), poor models of synthesis in current textbooks (Armbruster, 1984), and lack of opportunities for engaging in frequent and sustained expository writing (Anthony & Anderson, 1987; Applebee et al., 1987), we might conclude that elementary students' conceptualization of discourse synthesis may be naive, at best, or, at worst, potentially misleading and inhibiting their development of this fundamental ability.

In summary, students' potential difficulties may relate to their abilities to identify relevant text information, integrate such information with relevant and accurate background knowledge, use appropriate text structures, provide contexts and linguistic cues that are sensitive to audience needs, and bring their own perspective or voice to the writing. Determining both the nature of students' task impressions of the act of discourse synthesis and understanding the source of such impressions are fundamental both to developing a theory of learning complex literacy strategies and implementing instructional interventions designed to promote their development.

Current Study

Thus, the purpose of this study is to examine students' synthesis of expository text from multiple sources. To do so, two related studies were conducted and are reported on in this paper. In the first, students in one fourth- and one fifth-grade classroom read and then synthesized two selections on potentially related topics (i.e., rock climbing/caving; polo/field hockey). Their syntheses were analyzed for patterns and trends in students' apparent task impressions and

abilities. The generalizability of these patterns and trends was then tested in the second study in which students from a fourth/fifth-grade classroom engaged in the same synthesis activity. However, in the second study, students' appropriation and transformation of relevant strategies were explored through observations, formal and informal interviews, and analysis of their written syntheses. These different information sources were then examined to determine any relationships among students' task impressions, how they defined their goal, and the strategies they used to achieve their goal.

The data from these studies addressed the following questions that guided the research: (a) What are the features of fourth- and fifth-grade students' written discourse syntheses based on reading selections about potentially related topics? and (b) How do fourth- and fifth-grade students' appropriation and transformation of strategies for discourse synthesis relate to their task impressions?

Method

Subjects

Students from two schools participated in this study. For the first study, 20 students each participated from one fourth- and one fifth-grade classroom in an urban, neighborhood school. Students reflected a heterogeneous mix of reading and writing abilities (from 2 years below grade level to grade level, or slightly above, performance, as measured by a combination of teacher judgement and standardized test scores), ethnic backgrounds, and socio-economic levels and were approximately evenly distributed across gender.

For the second study, 13 fourth- and 5 fifth-grade students from a single classroom in a similar school within the same school district participated in a replication of the written synthesis, with the addition of classroom observation during the activity and of formal and informal interviews. While all students participated in the written activity, to ensure similarity of populations, student selection for the formal interview was based on their

performance on the synthesis activity. The selection process identified a pool of 10 students who appeared to have different task impressions and different ways of appropriating and transforming strategies related to discourse synthesis. Informal interviews had occurred within the classroom settings during the written discourse activity.

Materials

Materials consisted of experiment-specific passages, a five-question formal interview, and a set of broad questions to be asked during the activity for the informal interviews.

Passage sets: Studies 1 and 2. To examine students' ability to independently synthesize texts on related topics, two passage sets were developed on parallel topics about sports. Each set contained two related selections (i.e., Rock Climbing/Caving; Field Hockey/Polo). Topics were judged by a panel of five researchers to be of relatively low familiarity to students in this geographic area. Informal questioning of students prior to and during their reading suggested that they had no well-developed knowledge of these topics. The selections within each set were identical in length and idea units. Across the two sets, passages were of similar length (463-511 words) and idea units (*vis-à-vis* Anderson & Pichert, 1978) (24 to 28). Readability of all passages measured 3.5 according to the Fry Readability Formula (Fry, 1968). Each selection was structured to include an introduction, a description of supplies (i.e., clothing and equipment) needed for the sport, and a set of rules and procedures. Each passage included 6 categories of information (e.g., context, players, materials/equipment, rules/guidelines) and paralleled each other for order of categories of information presented. Included in each passage set was a page of lined paper on which students were to write their synthesis. Additional pages were available on request during the activity.

Oral directions that accompanied the passage sets asked students to (a) think about reports that they have written and why reports are written; (b) consider how, in writing reports, we use information from more than one book, article, or magazine; (c) feel comfortable asking any

of the adults in the classroom questions about words or ideas that may not be clear or about what to write; and (d) write a report about the ideas in the two selections they had read. In other words, they were asked to use their reports to "bring ideas together" from the two articles to form a single nonfiction report. The directions stressed that the exercise was not a test, that students could look back in the selections as much as they wanted to, and that they were allowed unlimited time.

Interviews: Study 2. A formal interview consisting of five general questions was created to be administered to a subset of students participating in the synthesis activity. The questions were designed to identify students' task impressions, strategy use, and audience awareness: (1) What were you supposed to write about? (2) How did you decide what you wanted to include in your report? (3) Who do you think is going to read your report? (4) What do you think is the reason why people write reports such as these? (5) Look over your report. If you were going to work on another draft of this report, like for including in your class's newspaper, is there anything you would want to do differently? Prompts for each question included the following: Can you tell me more about that? Is there anything else you can tell me about that? I'm confused about what you mean; would you explain this to me again?

An informal interview consisted of a pool of questions that seemed appropriate to ask during the activity, as researchers noted students' behaviors during the reading and written synthesis. For example, if a student were observed reading the selections then putting them aside with no reference to them during the synthesis writing, questions focused on why he or she did not look back (e.g., did he or she not need to, did he or she think it was not allowed). If a student appeared to write before reading the second selection, the question focused on what led to that decision. Apparent misunderstandings about the assigned task were addressed. For example, when a student asked, "Can I write a story?" he was reminded that this was supposed to be nonfiction.

Procedures

Discourse synthesis: Studies 1 and 2. Following the whole-class introduction of the activity and directions, students worked individually, reading the selections and writing their reports. The procedure began with a discussion of what it means to write a report about something and how the students might find information for their reports in different places. Then the two selections were introduced as information sources about two related sports. Students were told they could ask for help if there was anything in the selection that did not make sense or any words or ideas that confused them. Then they were asked to read the selections and think about how they might write a report that would describe these two sports in one paper. Students were told that they could look back in the selections for any information they wanted to include in their reports and that they would only have to write a first draft on this day. They were given no time limit and reminded that there were at least two adults in the room who could answer any of their questions. Students were told that this would help us learn more about what people did when they wrote reports about expository information.

During the reading and writing, observations were made focusing on students' use of the text, the questions they asked, and so forth. Students were aided with any unknown or unfamiliar words and occasionally reminded that they could look back in their selections as much as they wanted when writing. In general, students expressed no confusion and indicated orally during the directions that a report included information that was true, not copied from the books, and written in the students' own words. They were told that while it was not required, they could use blank papers for writing notes if they wished. Few chose to do this.

Students were given unlimited time, though all students completed the activity within an hour. If students appeared to need a break, they were allowed to get up from their seats (e.g., to get a drink of water, sharpen a pencil). During the activity, most students' questions focused on having words identified or spelled or asking for the directions to be repeated or clarified (e.g.,

What are we supposed to write, like what we have learned? Do I have to fill up the page?).

Thus, students listened to the directions, read the selections, and wrote their reports in a single session, conducted as a whole-class activity. Following the activity, several students expressed interest in keeping the articles, and a few indicated they would like to do the activity with new articles on another day. All students in Study 1 participated in the activity. In Study 2 one student had indicated he did not wish to participate, though when told he didn't have to, he then elected to continue.

Field notes, informal and formal interviews: Study 2. In addition to using the same discourse synthesis activities as used in Study 1, in Study 2 we also recorded field notes during the activity and students were asked questions informally as they wrote. No student was asked more than two questions over the course of the activity, and the question/answer exchange generally took less than two minutes.

Within two days of the synthesis activity (giving the researchers time to examine students' syntheses, informal interviews, and observations), 7 students (i.e., 1/3 of the total participants in Study 2) were selected to participate in the interview designed to tap their awareness of strategies used during discourse synthesis, their own task impressions of the activity, and their sense of audience and purpose. Students were asked if they wanted to participate in the interview and told they could quit at any time. When students agreed, they met individually with one of two researchers outside their classroom. Questions and responses were tape recorded, and the recording was later transcribed.

Data Analysis

Data analyses took three forms: (a) number and source of ideas included in the discourse synthesis, (b) patterns of synthesis as inferred from the written texts, and (c) interview/observation analysis.

Idea unit analysis. Students' written texts were analyzed for the number of idea units included, including total ideas, ideas based on each selection, background knowledge (consistent/accurate, inconsistent/inaccurate), and statements of personal opinion or feelings. Three researchers divided the original selections into their idea units, using a combination of independent identification with reliability checks and consensus. A scoring form was developed that listed each major category of information and the related details that formed that section of text. For Study 1, each students' synthesis was read by two researchers, and ideas included were matched to the scoring templates. A third researcher rescored the data, recording "intrusions" or ideas that went beyond that stated explicitly in the text (i.e., accurate and inaccurate content information, personal opinions and feeling). For Study 2, two researchers scored the data, with approximately 10% of the texts read by both researchers. Reliability was calculated to be above 90% and the remaining syntheses were scored by a single coder.

Patterns of discourse synthesis. Written texts were analyzed holistically for evidence of different patterns or approaches to synthesis. A scoring scheme was developed from two directions: emerging from the data and suggested by related research. First, the data from Study 1 was read by two researchers to see if *patterns emerged from the data itself*. Seven categories of approaches to synthesis were identified based on consensus of the two researchers. These categories included (a) writing only on one topic or on one category of information, (b) digressing to form a story, and (c) copying random lines from each text, and so forth. Second, a third researcher was given a subset of the data and asked to examine it to identify any patterns that seemed to occur across the papers and that might reveal students' strategies in creating a synthesis or that might suggest students' task impressions. Though the names of the categories generated by the third researcher varied from those of the first two, there were five categories that were consistent with those originally identified, such as lack of information balance and creating narratives rather than expository reports.

After examining the data for patterns, we returned to research conducted with older students (see Spivey, 1984; Spivey & King, 1989) and research on summarization and retelling (see Englert, Raphael, Anderson, Stevens, & Anthony, 1991) to determine other categories that would be relevant to explaining how upper elementary students approach the task of discourse synthesis.

From the two processes of pattern identification emerged four criteria that seemed to lead to successful syntheses (e.g., they were well balanced across topics and categories, organized, and "reader friendly") and four strategies that, when used, seemed to inhibit students' success. Coding was completed based on the eight criteria. First, students' papers were coded according to the four criteria that, when met, appeared to be positively related to a successful synthesis of the information across the different sources. These four criteria are (see Appendix A for coding schemes for balance, integration, and elaboration),

- (1) **Balance of Information:** (A) Across-text balance examines proportion of information from each selection relative to the total information included; (B) Within-text balance examines the distribution of information from the different potential categories of information present in the selections; (C) Text/Background balance examines the proportion of text information relative to information from the students' background knowledge (without regard to accuracy of that information).
- (2) **Degree of Integration:** The degree to which students integrate information from the different sources (two texts, background knowledge). Evidence of integration includes using key words and phrases to show relationships (e.g., both, alike, different from, but), pronominal references that signal relationships among the two texts, and parallel traits across the two topics.
- (3) **Degree of Elaboration:** The degree to which ideas included are elaborated to explain categories of information. Evidence of elaboration is derived from the proportion of ideas included relative to potential ideas, ideas per category per text.

- (4) Audience Sensitivity: Revealed in conventions such as setting a context, using "voice"³ to create a link to the reader or enhance reader interest, and using a structure⁴ that makes the information clear and easy to follow.

In addition to the criteria for successful syntheses, we examined potential strategy use that may have inhibited students' ability to synthesize text. Such strategies have been suggested by prior research. For example, Bereiter and Scardamalia (1985) have noted that when developmentally less mature writers create text, they may use an associative strategy or a "knowledge dump," in which each idea links to the subsequent one but with no overarching organization. Graves (1983) has suggested that young students may show insensitivity to the needs of their audiences because of the dominance of teachers as their sole audience. When working with students' question-answering strategies, Raphael and her colleagues (Raphael & Pearson, 1985; Raphael & Wonnacott, 1985) found some students overreliant on background knowledge at the expense of information about the text. Finally, pilot work for this study suggested that some students used different forms of copying. Based on this information, we examined the syntheses that seemed less successful. The four categories of inhibiting strategies included the following:

- (1) Associative memory/recall: Association of ideas without overall organization, lack of parallel traits, and students' text difficult to read for any overarching organizational pattern.
- (2) Audience insensitivity: Writers appear to be answering an implied question, rather than generating their own new text; the question apparently being addressed is not readily identifiable to the naive reader.

³Voice refers to the degree to which the students' personality was present. This was revealed through students' asking questions of their reader--including personal experiences, feelings, and opinions--and other related writing conventions. We are not using voice in the sense of Scollon (1989) or Bakhtin (1986), as it refers to issues of power or genre.

⁴Structure refers to an identifiable organizational pattern, though not necessarily a conventional structure as identified by Meyer (1975) or Armbruster (1984). Students could use any combination of conventional patterns or create one of their own.

- (3) **Digression:** Students include ideas from own background knowledge that may be inaccurate or only tangentially related to the topics; they digress from writing a report to writing a narrative or pseudonarrative.
- (4) **Copying:** Students may (a) copy random text from each of the two passages; (b) copy strategic sentences within categories, across text, and about parallel traits; or (c) paraphrase text sentence by sentence.

Observations and Interviews: Study 2. Students' interview transcripts were read independently by two researchers to identify students' tasks impressions, their strategies for obtaining and recording information, their perceived audience, and their identification of revisions if they were to write a second draft. After making individual evaluations, the two researchers then discussed their interpretations for consistency and thoroughness. Students' responses were then discussed in light of the strategies inferred from the written data and the observational notes recorded during the actual synthesis.

Observations recorded during the synthesis activity and informal interviews were read to identify supporting or conflicting evidence related to the more formal measures. Thus, we triangulated the interview and observation data with the written syntheses to provide further information about the apparent use of facilitating or inhibiting strategies.

Results and Discussion: Study 1

Analyses in Study 1 focused on the quantitative evaluation of the idea units included in students' syntheses and the qualitative analysis of the facilitating and inhibiting strategies that may have been used to contribute to the quantitative findings. Means and standard deviations were calculated for fourth- and fifth-grade students' (1) total number of ideas included within passage sets (A: Field Hockey/Polo, B: Rock Climbing/Caving), (2) total ideas drawn for the passages, and (3) total ideas included beyond text information for both accurate and inaccurate details and feelings/opinions statements. These group data are presented in Table 1.

We first examined any potential effects due to the passage set. *T*-test results suggested no significant differences in ideas included, $T(19) = 1.1415$, $p > .05$. Though any other significant

Table 1

Study 1: Means and Standard Deviations for Idea Units Included in Discourse Synthesis

Total Ideas from Text, within Passage Sets			Ideas Beyond Text: Accurate		Ideas Beyond Text: Inaccurate	Total Ideas Included
P/F		R/C	Personal	Content		
4th						
<i>m</i>	6.00	7.25	1.35	0.10	0.45	8.40
<i>sd</i>	4.16	4.53	2.72	0.31	0.76	3.89
5th						
<i>m</i>	10.91	9.56	0.30	0.15	0.25	11.00
<i>sd</i>	4.30	4.48	0.57	0.49	0.55	4.15
4/5th combined						
<i>m</i>						9.70
<i>sd</i>						4.18

effects were unlikely because of the large standard deviations and the relatively small differences in means, a *t* test was applied to the major comparison of the total number of idea units included across the two grade levels and to the minor comparison that showed the largest mean difference (number of opinions/feelings) across the fourth- and fifth-grade classes. Neither of these tests reached significance. For the comparison of total ideas included, $T(19) = 2.000$, $p > .05$; for the feelings/opinions included, $T(19) = 1.6406$, $p > .05$.

The statistical tests and the informal examination of means and standard deviations suggest that both fourth- and fifth-grade students were similar in the number of ideas they included based on information from the text and their own knowledge and that there were no significant differences in the way students in these grades elected to include feelings and opinions as well as accurate and less accurate background knowledge. Further, what is striking about the data is the relatively small proportion of information students included *from any source*. That is, students included less than one-third of the ideas possible from the text, with many students including as few as one-tenth. Looking across the grades in terms of students' use of facilitating strategies of information balance, integration across topics, and elaboration (see Table 2), we find that less than half the students are able to effectively draw on both topics when attempting to synthesize information and that even in cases when information from both topics is present, it is rarely presented in an integrated way. Students were relatively more successful in elaborating upon categories of information they did include, but the small number of total ideas suggests that such elaboration occurs only for those few categories of information in the report. Elaboration of multiple categories of information did not occur.

From the students' writing samples in Study 1, we can infer some of the potentially inhibiting strategies that mediated against their successful discourse synthesis. We discuss these briefly, primarily to provide the hypotheses that guided our development of the interviews and that informed the field observations during Study 2. Evidence from students'

Table 2

Study 1: Means and Standard Deviations for Facilitating Strategy Use Analysis

	Balance	Integration	Elaboration
4th			
<i>m</i>	0.85 ^a	0.90	1.85
<i>sd</i>	1.09	1.02	0.75
5th			
<i>m</i>	1.75	1.55	1.70
<i>sd</i>	1.07	1.00	0.57

^a Range from 0 - 3.

writing samples supported the existence of the four inhibiting strategies (see pp. 14-15) originally hypothesized. In addition, two other approaches to synthesis appeared to inhibit these students' success: (1) narrowly identifying relevant information and (2) writing a story. While we discuss these in the separate sections that follow, it is noteworthy that any given students' synthesis may reflect more than one of these features.

Narrowly Identifying Relevant Information

Students' samples that reflected identification of a narrow band of relevant information were characterized by including information about only one of the topics from only one of the articles, or from a single category of information for one or both topics. For example, James⁵ wrote about only one topic after reading selections on Polo and on Field Hockey:

Polo is in England and is fun to watch in polo you have to where surtin clothing you have to where pants, shrst, boots and a helmet. You use a long handle with a flat end, they have seven minutes. In the meedle of the game they have even longer breaks, the players try hit the ball to the other teames goel and then they will get a point, there are defence and ofence the players go back were they started. Hockey is a good sport and it is fun to play.

All details refer to polo. Though there is reference to field hockey in the final sentence, there is no information that parallels the polo section, or that even implies a relationship.

Similarly, Jessie apparently wrote about one topic which she called "field polo" and, further, focused on only one category of information:

Sports are very fun to play and wach. When people play field polo. every player wears skirts and some wear pants and other things like that. every team wears the same colers. each team has the same kind of stikes. many women and men. the women wear boots the men wear shoes keep you from sliding during the game. every time thay stop to take a rest.

Her text describes the uniforms primarily, with a brief reference to the equipment (i.e., "stikes") used to play the game.

⁵All samples include spelling and other writing conventions students used in their texts.

Overemphasizing Background Knowledge

Some students' samples reflected an overemphasis on background knowledge at the expense of the synthesis's integrity. While many students stayed on the same general topics, they tended to drift away from the content of the articles. For example, Yvonne wrote,

This acktivities cause different clothing which is cool clothes and sometimes warm clothes. I think 2 people is a lot safer and a lot wiser. If I ever whent rock I would bring water and first aid kit and thing like that. Mabe I will become a rock climber. The end.

Caving seems fun to me. I like explore new place. I never would explore a different place I never would go walking by my self never in my life. The end.

While Yvonne's voice comes through as she offers personal opinion and feeling, she does so to the exclusion of content.

Using Associative Memory or Recall of Information From Sources

A third example of an inhibiting strategy is associative/memory recall. These students appear to use the strategy identified by Bereiter and Scardamalia (1985), and Englert et al. (1991) of moving from one idea to the next with no overarching plan or organization. Their texts were often difficult to understand because of the scattered nature of the content, as in Carlos' paper:

Rock climbing is very dangerous but very exiting and fun you have to be well trained to climb rocks. Cave exploring is fun to but still you need a good training and to be very careful But you don't need as much equipment as rock climbing but you will need a flashligh and right a lot of thing such as warm clothing for it is very wet in there becuse no sunlight ever enters the cave also there is usually animal's in there such as bats, rats, mice, salmadars, lizards, and fish in the lakes that is if there is a under ground lake in there . . .

While Carlos does identify two major categories of information (i.e., training, equipment), he does not use these to organize his paper. For example, it is difficult to understand which equipment is needed for which hobby. Further, like Yvonne, Carlos adds additional information

based upon background knowledge (e.g., animal's . . . fish in the lakes), but does so in an associative pattern.

Strategic or Random Copying

A fourth potentially inhibiting strategy was copying: randomly from each of the two passages, strategically within categories and across text, or paraphrasing text sentence by sentence. Jeanine copied verbatim segments of text but seemed rather strategic in the way she did it:

Rock Climbing

have you ever climbed a hall? did you special equipment? did you train and practice for a long time. Rock climbing is an exciting hobby. it can also be very dangerous. The best kind of rock to climb is one that has large cracks and corners. of tall mountains other larger rocks stick up out of flat places. people who want to go rock climb need to wear special clothers. They also use some special things. They need to wear clothers. that are comfortable and not tight. they also need special shose.

At first glance, Jeanine's text seems to be the beginning of a fairly well-synthesized and interesting paper. However, we feel that Jeanine's text involves the potentially inhibiting strategy of strategic and verbatim copying. Jeanine has selected specific sentences from one of the passages and copied them in her report. She copied the introductory sentences, skipped to sentences about types of rocks to climb, and then copied phrases related to the clothes and equipment.

Writing a Story or Pseudostory

A fifth potentially inhibiting strategy occurred when students wrote pieces of fiction, sometimes loosely based on the selections read. Stories ranged from pseudonarratives in which the story was a vehicle through which inferences could be imparted to narratives only tangentially related to the readings. Often, these syntheses had a strong sense of the student's voice, prior knowledge, and personal opinion and feeling. In the following example, Jamaal's

pseudonarrative conveys information about equipment but does not go beyond the single category of information. Jamaal writes,

Hey, Susan I am going caving but first I am going to explain it. First you need a flash light, . . . Hey, Angie I am going to climb on rocks at Niagra falls but first I need practice you need special clothes special things . . . I think I will have my dad go with me and buy me all those special things too.

Jamaal's paper reflects a sense of purpose and audience, almost as if he were writing a letter to a friend. He tells his reader what he is going to do, what is needed for the activities, and then creates a site where he would like to rock climb. He ends by explaining how he personally might obtain his supplies, developing neither the synthesis nor his narrative.

Lack of Context for Paper

Several of the papers illustrated a lack of "reader sensitivity" on the part of the authors. Rarely did students provide a context for why they are writing their papers, what they hope to accomplish, or what they hope their readers to learn. For example, Yvonne provided no discussion of her topics, nor any sense of her purpose. Jessie's introductory sentence, "Sports are very fun to play and watch," is vague. Jeanine appears to set a context but, in fact, only copied the introduction from one text and thus establishes no sense of synthesis. Like many school-related writing activities, these students appeared to assume (and, we might argue, appropriately so) that their audience is the adult who gave the assignment and thus, as a reader, is in little or no need of a context.

These examples demonstrate students' apparently different task impressions of discourse synthesis. Facilitating strategies such as selection, integration, and elaboration often were interceded by inhibiting strategies (e.g., associative memory/recall, audience insensitivity, digression, copying, and story writing). Students' task impressions (Spivey & King, 1989) for synthesizing information from multiple sources were not consistent with those of more experienced students, their teachers, or the researchers. However, students' reasons

underlying their approaches to synthesis activities are still in question and unavailable from merely examining students' writing samples.

A deficit model might argue that they lacked the appropriate strategies and need to be remediated. A naturalist model might suggest students had not had the appropriate experiences in discourse synthesis and thus could not be expected to succeed. A social constructivist perspective might suggest a disparity between the goals identified by the teacher and those of the students, and thus a need to better understand the students' task impressions to help students appropriate and transform strategies relevant to this goal. Thus, the focus of the second study was on tapping students' underlying reasons, goals, and beliefs about synthesis, to understand better the relationship between the strategies they elected to use and their task impressions.

Results and Discussion: Study 2

There were two sets of data analyses for Study 2. The first consisted of a comparison of the quantitative measures of idea units included, to examine whether the findings from Study 1 could be generalized to this second population of students. The second was a qualitative analyses of the written data, the informal and formal interviews, and the observations.

Tables 3 and 4 present the means and standard deviations for the number of ideas students included, the relative proportion of background knowledge (accurate and inaccurate) and feelings/opinions included by this group of students, and the facilitating strategies, respectively. A *t* test was performed comparing the number of ideas included by students in this sample to those from Study 1 (*m* Study 1 = 9.70, *sd* = 4.18; *m* Study 2 = 10.33, *sd* = 4.14). No significant differences were found, indicating both populations of students were similar in the ideas included. The qualitative evaluation of their facilitating strategies of balance, integration, and elaboration revealed essentially similar problems, though the students from Study 2 were somewhat more successful in integrating those ideas included, and somewhat

Table 3

Study 2: Means and Standard Deviations for Idea Units Included in Discourse Synthesis

		Total Ideas from Text, within Passage Sets		Ideas Beyond Text: Accurate Personal Content		Ideas Beyond Text: Inaccurate	Total Ideas Included
		P/F	R/C				
4th	<i>m</i>	7.43	6.55	2.58	2.30	1.60	10.33
	<i>sd</i>	5.13	2.25	1.51	1.49	0.89	4.14

Table 4

Study 2: Means and Standard Deviations for Facilitating Strategy Use Analysis

		Balance	Integration	Elaboration
4th	<i>m</i>	1.67 ^a	1.78	1.39
	<i>sd</i>	0.97	1.11	0.92

^a Range from 0 - 3.

less accomplished at elaborating upon the ideas included (see Table 4). However, these students showed much the same variability in their approach to synthesis as did those students in Study 1, and many of the same difficulties.

In examining these data and triangulating them with information gathered within the synthesis activity itself, we identified 10 students who reflected different ways of approaching discourse synthesis, different ways of utilizing the text, and different goals--in short, different task impressions. Their interview data, in combination with the written work and observations, provide insights into the way in which synthesis had been appropriated and transformed. Following a brief description of synthesis activities that students experienced over the academic year (October through February), we will describe their discourse syntheses, observed writing processes, and interview responses in detail.

Students had participated in several activities that encouraged them to synthesize across different literature selections related to two themes: folk tales and World War II. For example, in one activity, students selected two folk tales that they had read then identified similarities and differences. Next, they discussed these in peer-led discussion groups and wrote their own folk tales drawing on some of the features they had noted. In a second activity, they identified a major theme (e.g., innocent victims, caring during war) running through several books that described events which took place during World War II. They noted events or ideas from each book supporting their theme and wrote essays about their theme, relating their ideas to the literature selections. The synthesis activity for this study was the first that stressed the integration of descriptive information, though they had synthesized expository information in the form of a timeline during a social studies unit about explorers.

The students selected for the interview were those whose written synthesis papers reflected the range of task impressions seen in Study 1 and Study 2. These students' responses to the five-question interview helped illuminate their task impressions of the synthesis

activity, focusing on their description of the task, how they selected information, audience identification, and purposes and possible revision foci. Students will be described within five categories of apparent strategy use: (1) associative/memory recall, (2) overemphasis of background knowledge, (3) narrow topic/category focus, (4) copying, and (5) creating narrative text. The sixth category, audience insensitivity and lack of context, pervaded across all categories of students' strategy use. We discuss the relationships among their written products, observed reading, writing behaviors, and task impressions.

Associative/Memory Recall

Monte's, Jennifer's, and Linda's discourse syntheses and related observational notes suggested elements of associative memory or recall strategies. Monte was proud that his was one of the longest papers in the class.

that both articals are real good because they tell about the game and the game ruls like riding (polo) and passing the ball to a team mate (Field hockey).

If you want to see a game of polo you will need to go to another place like england to see it, or other places around the world. But mainly it is played in summer or somewhere were it is hot.

Field hockey is somthing like polo but you dont ride horses and everything is differint, for instance, there are a lot more players than there is in polo (11) and you can watch on television.

Even if they are differint games I still like them both. Expesially the rules, there all fair, they give you protection to wear. But you have to work team work with your partners to win the game. Both games have different rules like in polo you have to get on your spot before you start the game and you have to roll the ball down the field and into the net. And on field hockey the game is an hour long and other rules but I have to go now. One thing I forgot to menchin, on polo there are 4 players on a team and on field hockey there are 11 players on a team.

While Monte had elaborated more than was typical, we were struck by the associative nature of the ideas included. He moved among a range of information categories, though he frequently provided parallel information. During the synthesis activity, he was observed moving back and

forth between the selections and his constructed text. As he explained his strategy during the interview, it seemed that the text, not any overarching plan, drove his information selection:

'Cause I was/like writing what I thought the rules were and everything, so I kept looking back finding/like/stuff about the rules and the game and all that//so I was writing something about what the game is about and the rules and everything //so and I kept looking back in the articles *to find out what I wanted to write* [emphasis ours].

Not all students who seemed to use associative strategies relied on the text. Despite being observed reading both selections, Linda's synthesis had information only from rock climbing.

climbing is a very dangerous hobby. why two or mor people go encase someone get hurt. Rock Climber need to Be very strong the lift weight so the con pull there whole Body weight. the also where speicl shoe to Keep form falling. Also the need a very stornig rope and nut they are really Littl meotch hooks. And they need a harness witch is a Belt that hook to the rope. he take a nut from his harness pushes the nut Into the Rock ties the rope to the nut witch is tied to the harness. and he pull's himslf up. he put more nut In the rock as he goe's along. you should never climp a rock without trosing. with the right equipment and expeinced Leader. It should Be Lot of fun and you wont have to worry about dieing. The End.

Field notes indicated that she was proud of the amount she had written, but her only criteria of how to select information was based on whether it held her interest:

Well, I like to include the things that most interest me, like people that have to be really strong, so most of them lift weights// and there's belts called harnesses and that's just hooked up to a rope and there's nuts and little hooks that you push into the rocks//and tie the rope and it pulls you up and you climb the rocks.

The idea about strength prompted that of lifting weights; harnesses led to ropes and hooks; rope perhaps led to pulling up as you climb.

Jennifer, like Linda, used interest as her criteria for inclusion.

The first thing that is alike in these to stories is both Caving and Rock Climbing are dangerous. And also in both stories the peopl who do caving and Rock Climbing have to wear some kind of special equipment.

But the equipment that they wear are different then one other. And the both take place some were else.

But they say both hobbies are fun to do because you learn more about caving and Rock Climbing. The End.

In the interview, she indicated that she used a "back-and-forth" process, identifying something of interest in one article, then seeking related information from the second. While somewhat more sophisticated than Monte or Linda, she still reflected more of a random search for an idea, which then sparked a search for associated parallel information.

Overemphasizing Background Knowledge

Like the students in Study 1, several students appeared to use their own background knowledge at the expense of text information. Randy's and Larissa's samples provide an interesting contrast.

The thing about Caving and Rock Climbing is there not the same. But both hobbies are dangerous and you could get hurt. If you want to rock climb you should have a partner because you can fall and other things like that. The thing that's different about these articles are that the cave is really dark and not sun light gets really in there. But if your rock climbing you can see. So remember if your going rock climbing take a partner because you can get hurt. And if you go into a cave you should sometimes take a buddy because it is very dark in a cave and you can get lost. and you need the equitment to do that stuff. The End.

that I sould play polo it sounds like fun but you can get hurt because you tried to hit the ball and fall off. And borke part of your body. And be sure you don't hit nobody in the face with the ball. And when I grow up I want to play polo for the rest of my life and to be a profreshal so I can teach little kids that so they want to teach too. 2 I'd wished I played Field hockey because I think it is only for woman because they got skirts because I know men don't wear skirts in some other country they wore skirts they are called kilts and they used bagpipes. And I think you sould play Field Hockey too. And that your children can play for their rest of their lives.

During the synthesis, they both discussed issues that went beyond the text. Field notes recorded that Randy discussed his interest in becoming a geologist with the teacher. Later, he shared his paper with two peers because he said he thought they would find it interesting since he was going to become a geologist. Larissa, in contrast, asked for information about men who wear skirts and about how to spell kilts.

Despite their similar inclination to move beyond the text, not surprisingly, their syntheses show a marked difference in the kinds of beyond-text information included, and the impact on the relative success of the synthesis. Randy's text was more successful in terms of content, though he focused primarily on safety. He seemed to work to make his text interesting with his own "voice" and sense of audience coming through. Randy's text resulted in a tone of feeling and personal opinion about rock climbing and caving. There is a sense of congruence between his own goals and interests and the topic of the caring article. Asked about how he determined ideas to include, he initially notes that the article was important, but spends much more time describing his own knowledge:

From the article because a-h-h-m it really helped me 'cause when I grow up I want to be something like a geologist; I'm not sure but if you go in a cave a-h-h-h-m like if you go in a cave a-h-h-m you can take, you can look down in holes in the cave and stuff and that's what geologist do, they study under the cave so a-h-h-m they really gave me some more clues and stuff to be a geologist.

His interest in becoming a geologist led to the identification of particular kinds of information, though, notably, he elaborates little of relevant ideas from the text or his knowledge base. Perhaps, as a 10-year-old, he is more concerned about safety than other issues.

In contrast, Larissa created a completely different text emphasizing her own knowledge and associations of tangential information. As she explained in her interview, she saw the activity as a fantasy or make-believe:

I just made it up myself 'cause I could do it for real. I just /um/thought/ thought/ and thought, then I got the idea and kept on writing/um/some things down/that/ it/ was a great idea/then I should do something.

In her synthesis, she moves from explaining that she wants to be a "profreshal" (professional) polo player to teaching children to play polo to playing field hockey and a discussion of women and men wearing skirts. Apparently, the word "skirts" in the field hockey article prompted this

association, and Larissa's task impression of make-believe did nothing to dissuade her from following her thoughts.

Writing About One Topic or One Category Within an Article

Several children wrote about only one topic or focused on a single category. Joshua was characteristic of the latter, writing primarily about the rules.

it is different is that each team goes for a different net so they can score a point for their team the more points the score the they can win the game and in the way they play is the men play this game called polo and the need to wear pants, shirts, riding boots, and a helmet so the want get hurt on the face thats why the were a helmet.

The same is that there are just woman plays this and it is called field hockey and they use special shirts and skirts Every player has to get them and special shoes to play and the shoes keep them feet from slidding into wet grass and each player has to need a stick to play the game they use a stick it hit the ball with it so they can score a point at the end of the stick there is a long handle at the other end of the stick is a long flat part of it to hit the ball and the white lines tell the player were the can play at the end of each side is a goal it is made up of two long tall post a net goes between the post and five have to be offence they try to get the ball away from the other offence the goalkeeper always in by the goal so they make a point and the one with the most points at the end wins.

Like Monte and Linda, he seemed pleased at the amount he had written, making an issue of his request for a second sheet of paper and then showing the adults in the room his two completed pages. His paper is an example of one in which elaboration has occurred but primarily within one category--the rules of the game. In contrast, Linda wrote about several categories of information but included only information from one selection.

We interviewed Joshua and Linda to understand their reasons for writing about one article or one category within an article. While their task impressions varied, both students interviewed suggested their narrow focus was prompted by their task impression. Both defined it as a limited focus. For Joshua, the focus was on rules:

I just wrote about how you supposed to play the games. I wrote about that, what you were supposed to wear. I was supposed to write about what we thought was good, about anything we read.

For several prompts, Joshua consistently referred to writing about rules. His secondary reasons involved writing about "interesting stuff so that it would be interesting." During his interview, Joshua elaborated on the rules employed in playing polo and field hockey and discussed the uniforms and equipment needed, how teams go about scoring, and the responsibilities of the offensive and defensive teams. Despite the fact that he clearly had additional information about the categories that he thought to be important, when asked what he might do to revise, he focused not on synthesizing this additional information but on audience. How he would consider audience is difficult to interpret, but it may be consistent with his narrow focus. He apparently assumes that he should write a different paper for each person, suggesting "I'd make it to each one so it'd be different/ 'cause if it was the same it wouldn't be right 'cause everyone/ 'cause everyone would have the same."

Recall that Linda had used an associative strategy to write her synthesis on interesting ideas in rock climbing. Her narrow focus was easily explained by her task impression:

I think we were supposed to write about the story *that most excites us* and/um/what about the story that *excited us most*. (prompt) Well/ I thought caving was not interesting// I didn't/ I didn't like/I thought it was boring.

After several prompts concerning why people write such reports, Linda commented that her purpose was, "I'd like the people to know *what I thought was interesting* about this stuff." She continued to use the word "interesting," meaning what was interesting to her. Her comments were consistent throughout her interview and helped us understand one reason students may write about a narrow set of information--that is what they find interesting. Both Joshua's and Linda's difficulties in writing integrated text related to their task impressions. Their audience identification (either self or an ambiguous "other") limited the degree to which integration was important. Each student's sense of audience was incongruent with that of the academic goals of synthesis.

Strategic/Random Copying

Joshua also provides insights into why students may have used strategic or random copying. He described his strategy for deciding what information to include, saying

I started reading the polo first, and then when I got done, I started, I started writing about it, 'cause sometimes I forget what, like if I read polo and then I read field hockey and then I forget about polo; it's hard to start writing; and then after polo I wrote about this.

What is interesting about Joshua's explanation is that, while his task impression was focused on writing about the rules of the game and what he thought was interesting, he was diligent in trying to balance his information about polo and field hockey, stating "I was puttin' as many things as I could, so I started putting lots of things I tried to get more in the first one, and then I got more in the second one . . ."

Similarly, Eva's text reflects a search for ideas to copy from the articles:

differences between these two articals is the equipment in both of them like this; for Rock climbing they need loose light clothing and leather shoes. And for caving people need, heavy clothes, Rubber boots, A hard hat, and a flash light

The likes in these articals is they both have something to do with rocks, They can be done without much practice, And also need differnt things to acive what they wanted to finish or explore.

She strategically selects a comparison/contrast approach to synthesis but ends up randomly selecting information to include from the original articles. Her text reflects the results of such a search, and her interview comments are congruent with her synthesis. Her task impression was compare/contrast across the two topics, but in the end, she indicates she just guessed about what to include:

Basically I was thinking about what was the differences between the two things. And what were the alikes. It was almost like pick your own assignment, to relate to what you read. We were supposed to write about um, *I just took a guess.*

Eva talked about her approach to synthesizing information: "writing about the alikes and the differences." But it appears that she was uncertain about the synthesis activity. Her

comment about "pick your own assignment" suggests that her task impression was not consistent with her integration strategy.

Writing an Expository Text in the Form of a Story

Tremaine created a narrative about cavers and rock climbers, albeit a very short one:

One day there were cave climbers a rock climbers they lick to that because it was there hobby and they liked it and that is dangerous the wore spcial kind of shoe they are called rubber shoes. The end

During the synthesis activity, he had asked one researcher if he had to "fill up the page." He was told that he only had to write about whatever he had to say. Tremaine then asked, "Can I write about a caver and a rock climber?" The researcher responded that he should think of this activity as a report. In a formal interview, he was asked what he was supposed to do. He stated,

Well what you was supposed to do was um/*take it and write a story about it*/what you *read in the paper*/and then/and then you um/you raise your hand and they um/take it away from you.

When the researcher asked Tremaine what was his story about, he responded by saying "it was about cave climbers and rock climbers." He said that in deciding what to put in his story, he read the story and thought of ideas of his own and some of the ideas that were in the "book." The result was a pseudonarrative in which he attempted to convey information through a story, but he did not develop either the story or the content of the selections.

When Tremaine was prompted further in an effort to understand why and how he selected certain ideas for his report, he said that he included what he thought was good from the original articles on rock climbing and caving. He noted that "one day there were cave climbers and rock climbers" was his own idea and said that he thought about "background" for his story when he "pictured in head information for gold and silver for caves and the same for rock climbing." His initial approach to the synthesis activity, his text, and his interview consistently suggest that Tremaine's task impression was to create a story. When faced by the task constraints, he

merely made the narrative by personalizing for a rock climber and a caver the content he chose to include.

Summary and Conclusions

This study sought to provide insights into the features of elementary students' discourse syntheses and the way in which their appropriation and transformation of strategies relate to their task impressions. It is clear from the data that, in terms of features, we might conclude that elementary students have a great deal of learning and development ahead as they acquire the abilities to synthesize information from multiple sources. Elementary students' difficulties with strategies related to synthesis--specifically collecting information, integrating, balancing, elaborating, and setting contexts--lessened their success in successfully synthesizing discourse.

Students' syntheses were characterized by lack of reader sensitivity, lack of balance across topics and categories, lack of integration of information from both selections, use of background knowledge at the expense of text content, an associative rather than overarching structure and/or inappropriate selection of text structure, and verbatim or paraphrased copying of text. Many of these features are consistent with Spivey & King's (1989) work with middle school students, as well as criticisms by others who have worked to develop students' expository writing abilities (e.g., McGinley, 1990).

The question we might ask is "Why?" Have they been unable to practice the abilities they inherently possess? Did they lack the motivation to do the task as described? Did students lack strategic knowledge? Is there a lack of congruence between their task impressions and those of the adult community? The first study explored students' ability to synthesize discourse in the fall of the academic year. The results clearly suggested that they experienced difficulty. However, the students in the second study had participated in several different synthesis activities during the year. If providing more opportunities to engage in the cognitive processes

related to synthesis were the answer, we might expect to see a significant difference in the discourse syntheses of students from the first and the second study. Yet, this did not occur.

One possibility may be students' lack of "will," which Paris, Lipson, and Wixson (1983) suggest is as important as skill or strategy use. Students may have lacked the motivation to complete the activity as directed. They may have been trying to avoid embarrassment and thus changed the task or merely resisting active participation in an activity defined by the researcher/teacher. Yet, a number of students during Study 2 specifically asked if they could do another of these activities, explicitly stated that it was fun. Given the option not to participate, all students chose to engage in the reading and synthesis. Further, during the interviews, some of the children described how adults and "college people" could learn about what children do. One student even referred to the papers being taken somewhere for others to read (i.e., to a conference that they knew the researchers would be attending). Thus, it seems unlikely that the problems the students experienced can be attributed to a problem of "will."

Two other possibilities seem likely. Perhaps students merely lacked knowledge of relevant strategies. Certainly previous research suggests that elementary students may lack specific strategies related to discourse synthesis. The abilities to identify important information and to summarize have been related to age (e.g., Brown & Day, 1983; Winograd, 1984). Knowledge of text structures influence how capably students' generate expository text and recall expository information (Englert, Raphael, Anderson, Stevens, & Anthony, 1991). However, the students in Study 2 had participated in several instructional activities in comparing/contrasting information, and several students (e.g., Monte, Eva, and Joshua) elected to use such structures to convey their information without successfully synthesizing the information sources.

An equally likely, if not more powerful explanation, is that in appropriating and transforming strategies related to synthesis and the task itself, these students' intentions were

sufficiently distant from the researchers'/instructors' as to make them appear nonstrategic. In fact, what became clear through the interviews is that the students had definite task impressions and adopted strategies that would help them meet their defined goals. Wertsch (1984) suggests that "it is essential to recognize that even though the adult and child are functioning in the same spatio-temporal context, they often understand this context in such different ways that they are not really doing the same task" (p. 9). Drawing on research that has examined adult-child interactions during the completion of a variety of tasks (e.g., constructing objects, solving math problems), Wertsch notes that it is often the case that the child has created a different "situation definition" than did the adult. As Wertsch notes, a child's growth within Vygotsky's Zone of Proximal Development (Vygotsky, 1978; Wertsch, 1984) involves the *redefinition* of the situation.

Wertsch's position is consistent with that of Rommetveit (1980) who argues that basic problems of human communication occur because we try to make "monistic assumptions" about "literal" meanings of language. We take for granted that children differ in what they know and understand about the world, just as adults do. Nowhere is this more likely than within the context of classrooms where children may often have different interpretations about what teachers say, interpretations that may not be even close to what the teacher has intended. What tends to happen is "actual and reciprocally assumed control of what is meant by what is said and in some sense, a self-fulfilling *faith* in a shared world" (p. 109). Under circumstances such as these, it can be difficult to construct human intersubjectivity where multiple assumptions are possible. In fact, Wertsch identifies intersubjectivity as the situation in which such agreement is reached between the adult and child, and notes its importance in learning. McCarthey (1991) has shown the importance of intersubjectivity for children's internalization of strategies taught during process writing minilessons and through teacher-student writing conferences.

As a group, the data concerning students in this study suggest that intersubjectivity had not yet been reached; instead, students used strategies that would help them achieve their own goals--goals that rarely "matched" with the adult definition of discourse synthesis. Monte's task impression was to write "what the game is about and the rules and everything," so he selected a strategy that would help him meet that goal--to go to the text to find out the information that could be included in these categories. Linda's task impression was to "write about the story that most excites us," and she strategically included information about the one selection that most interested her. Jennifer, Eva, and Joshua all indicated that they were to write about similarities and differences; each described a strategy they thought would lead to success. Joshua knew he would forget information from one passage if he went on to the next, so he described how he read one and wrote about it before going on to the next. Even Larissa's synthesis, which only tangentially related to what was in the passage, was congruent with her task impression and strategy use. She indicated that she thought the task was to write about polo and field hockey but focus on things that she would like to do. She mentioned several times in her interview that she essentially made things up that she would want to do, and her text reflects her "success"--she could play polo, teach, play field hockey, and wear skirts.

The power behind these findings lies in each of these children's apparent strategic approaches and the congruence between their task impressions and the way they have appropriated and transformed strategies to meet their goals. The implications for our knowledge of discourse synthesis in particular, and strategy instruction as a whole, are profound. We must take seriously Gavelek's discussion of the social construction of strategy use in terms of Harre's "Vygotsky space." He notes that for appropriation and transformation to occur in meaningful ways toward the achievement of particular goals (e.g., academic activities such as discourse synthesis), there needs to be a shared understanding of the task impressions (i.e., intersubjectivity)--not only on the part of students understanding the teachers' goals,

but of the teachers' recognizing of the various interpretations of any particular task by any given child.

Methodologically it suggests that merely identifying what children *are unable* to do begs the more important question of what they *are able* to achieve and *how* they have appropriated and transformed the activities of school. Both Larissa and Randy indicated that their own incoming knowledge (kilts and geologists, respectively) influenced how they approached their discourse synthesis. Yet, the related instruction they may each need differs greatly. While Randy would benefit from thinking about how his relevant knowledge could have given more voice or interest to his paper, Larissa needs to be helped to distinguish between relevant and irrelevant background information.

Finally, limitations within this study suggest areas for future research. For example, students' specific strategy knowledge related to selecting important information, connecting information in an organized manner, and so forth were not tested in this study. Such information would help to conclude exactly what role strategy knowledge plays in determining the nature of students' task impressions. Further, perhaps informing students of specific features of synthesis (e.g., balance of information, elaborated with relevant details from text or knowledge base) would be sufficient in moving their task impressions more closely to those of the instructor. Such information would help to determine how much instruction may be needed to enhance elementary students' beginnings of discourse synthesis. Finally, it may be important to determine the developmental nature of such task impressions. Perhaps developmental differences in discourse synthesis are attributable to increasing congruence or conformity between the students' and teacher's task impressions as students proceed through the grade levels.

However, regardless of future research and what it reveals, we cannot merely identify the fourth- and fifth-grade students in this study as "lacking strategies" or "behaving in

nonstrategic" ways. We must exercise caution in inferring lack of abilities from the products students create. Rather, we must look beyond the products to the ideas and strategies that generated them.

References

- Anderson, R. C., & Pichert, J. W. (1978). Recall of previously unrecalable information following a shift in perspective. Journal of Verbal Learning and Verbal Behavior, 17, 1-12.
- Anthony, H. M., & Anderson, L. M. (1987, April). The nature of writing instruction in regular and special education classrooms. Paper presented at the Council for Exceptional Children, Chicago.
- Applebee, A. N., Langer, J., & Mullis, I. (1987). Learning to be literate in America: Reading, writing, and reasoning. Princeton, NJ: Educational Testing Service.
- Armbruster, B. B. (1984). The problems of "inconsiderate text." In G. G. Duffy, L. R. Roehler, & J. N. Mason (Eds.), Comprehension instruction: Perspectives and suggestions (pp. 202-217). New York: Longman.
- Bakhtin, M. M. (1986). The problem of speech genres. In V. W. McGee (Trans.), Speech genres and other late essays (pp. 60-102). Austin, TX: University of Texas Press.
- Bereiter, C., & Scardamalia, M. (1985). Cognitive coping strategies and the problem of "inert knowledge." In S. Chipman, J. Segal, & R. Glaser (Eds.), Thinking and learning skills: Current research and open questions (Vol. 2, pp. 65-80). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Brown, A. L., & Day, J. D. (1983). Macrorules for summarizing texts: The development of expertise. Journal of Verbal Learning and Verbal Behavior, 22, 1-14.
- Dutcher, P. A. (1990). Michigan's Innovative Reading Assessment . . . How is it working? In C. Perlman & P. Wolmut (Eds.), Issues in large-scale assessment programs (Vol. 6, pp. 11-25). Chicago: National Association of Test Directors and the Chicago Public Schools.
- Edwards, D., & Mercer, N. (1987). Common knowledge: The development of understanding in the classroom. New York: Methuen.
- Englert, C. S., Raphael, T. E., & Anderson, L. M. (in press). Socially-mediated instruction: Improving students' knowledge and talk about writing. Elementary School Journal.
- Englert, C. S., Raphael, T. E., Anderson, L. M., Stevens, D. D., & Anthony, H. M. (1991). Making writing strategies and self-talk visible: Cognitive Strategy Instruction in Writing. American Educational Research Journal, 28, 337-372.
- Englert, C. S., Raphael, T. E., Fear, K. L., & Anderson, L. M. (1988). Students' metacognitive knowledge about writing informational texts. Learning Disabilities Quarterly, 11, 18-46.
- Englert, C. S., Stewart, S. R., & Hiebert, E. H. (1988). Young writers' use of text structure in expository text generation. Journal of Educational Psychology, 80, 143-151.

- Fry, E. B. (1968). A readability formula that saves time. Journal of Reading, 11, 513-516, 575-578.
- Garner, R., & Gillingham, M. G. (1987). Students' knowledge of text structure. Journal of Reading Behavior, 19, 247-259.
- Gavelek, J. R. (1990). Education and the social construction of mind. Unpublished manuscript, Michigan State University, College of Education, East Lansing.
- Graves, D. H. (1983). Writing: Teachers and children at work. Exeter, NH: Heinemann Educational Books.
- Graves, D. H., & Hansen, J. (1983). The author's chair. Language Arts, 60, 176-183.
- Greene, S. (1990, December). Authority in text and task. Paper presented at the National Reading Conference, Miami, FL.
- Harre, R. (1984). Personal being: A theory for individual psychology. Cambridge, MA: Harvard University Press.
- McCarthy, S. J. (1991, April). The use of discourse from writing conferences: Case studies of two sixth-grade students. Paper presented at the annual meeting of the American Educational Research Association, Chicago.
- McGinley, W. (1990). The role of reading and writing in composing from sources. Unpublished manuscript, University of Michigan, Ann Arbor.
- Meyer, B. J. F. (1975). The organization of prose and its effects on memory. Amsterdam: North Holland.
- Paris, S. G., Lipson, M. Y., & Wixson, K. K. (1983). Becoming a strategic reader. Contemporary Educational Psychology, 8, 293-316.
- Raphael, T. E., & Pearson, P. D. (1985). Increasing students' awareness of sources of information for answering questions. American Educational Research Journal, 22, 217-236.
- Raphael, T. E., & Wonnacott, C. A. (1985). Heightening 4th grade students' sensitivity to sources of information for answering comprehension questions. Reading Research Quarterly, 20, 282-296.
- Rommetveit, R. (1980). On "meanings" of acts and what is meant and made known by what is said in a pluralistic social world. In M. Brenner (Ed.), The structure of action (pp. 108-149). Oxford: Basil Blackwell.

- Scollon, R. (1989). Storytelling, reading, and the micropolitics of literacy. In J. E. Readance & R. S. Baldwin (Eds.), Dialogues in literacy research: Thirty-seventh yearbook of the National Reading Conference. Chicago: National Reading Conference.
- Spivey, N. N. (1984). Discourse synthesis: Constructing texts in reading and writing (Outstanding Dissertation Monograph Series). Newark, DE: IRA.
- Spivey, N. N. (1990, December). Acquiring discourse knowledge. Paper presented at the National Reading Conference, Miami, FL.
- Spivey, N. N. (1991). Discourse synthesis: Questions/answers. In K. S. Jongsma (Ed.), Questions & Answers Column, Reading Teacher, 44, 702-703.
- Spivey, N. N., & King, J. R. (1989). Readers as writers composing from sources. Reading Research Quarterly, 24, 7-26.
- Vygotsky, L. S. (1978). Mind in society: The development of higher psychological processes. Cambridge, MA: Harvard University Press.
- Wertsch, J. V. (1984). The zone of proximal development: Some conceptual issues. In B. Rogoff & J. V. Wertsch (Eds.), Children's learning in the "Zone of Proximal Development" (New Directions for Child Development #23). San Francisco: Jossey-Bass.
- Wertsch, J. V. (1991). Voices of the mind. Cambridge, MA: Harvard University Press.
- Winograd, P. W. (1984). Strategic difficulties in summarizing texts. Reading Research Quarterly, 19, 404-425.

Appendix A

Coding Scheme for Elaboration/Integration/Balance

Degree of Integration: The degree to which students integrate information from the different sources (two texts, background knowledge). Evidence of integration includes using key words and phrases to show relationships (e.g., both, alike, different from, but), pronominal references that signal relationships among the two text, and parallel traits across the two topics.

- 3 Successful integration across topics. Features such as key words and phrases, text structure or organization, references across topics all "work" to create an easily read synthesis of the information across both topics. Comparative information is presented, and contractive information is discussed.
- 2 Some integration is present, using, for example, key words and phrases like "both," "similar," "alike," and "different" or some parallel information is included.
- 1 Each topic is discussed separately, without reference across topics, with exceptions such as an introduction that indicates there are two topics or a concluding statement.
- 0 No integration at all; two separate paragraphs, sections, or columns in which each topic is treated as an isolated one; or only one topic is discussed.

Degree of Elaboration: The degree to which ideas included are elaborated to explain categories of information. Evidence of elaboration is derived from the proportion of ideas included relative to potential ideas, ideas per category per text.

- 3 Main categories of information are included, with expansions within several categories. These expansions can include details from the text or the writer's own knowledge base, opinions offered, or feelings about the topics. In other words, more than a simple summary of general categories is discussed.
- 2 Some elaboration, and evidence of writing about both topics, but the elaboration may take forms that preclude ultimate success. These include the following: (a) writing a lot of details but only on one topic and (b) including details from only one or two categories.
- 1 No elaboration across topics, but may have included information within a single category--short, succinct sentences on single main ideas or a few random details presented without context or elaboration.
- 0 No elaboration--single sentence or phrase referring to readings.

Degree of Balance: The degree to which there is across-text balance which examines proportion of information from each selection relative to the total information included; the degree to which there is within text balance which examines the distribution of information from the different potential categories of information present in the selections; and the degree to which text/background balance examines the proportion of text information relative to information from the students' background knowledge (without regard to accuracy of that information).

- 3 Successful balance across text. Ideas from two selections are well balanced to the total information included.
- 2 Evidence of both passages included. A feature includes balance within text with the distribution of information from the different potential categories.
- 1 Information included from two potential categories, which may or may not include information from two texts.
- 0 Only one potential category or one topic included in information.

Appendix B

Student Interviews: Study 2

Monte

Interviewer: Can you tell me what this assignment was all about, like what were you supposed to write about?

Monte: About the articles we read, like a report, telling what we thought about the articles and everything.

Interviewer: How did you decide . . . what information to include and what not to include?

Monte: 'Cause I was/like/writing what I thought the rules were and everything, so I kept looking back finding/like/stuff about the rules and the game and all that//so I was writing something about what the game is about and the rules and everything//so and I kept looking back in the articles to find out what I wanted to write.

Interviewer: When you looked back into the articles, how did that give you ideas? Like, did you go back and did you look for certain things, or did you like, read, and as you read get an idea? What happened? Do you remember?

Monte: When I started/like/reading through? And when I got to something I liked, I'd/like/think of it in my own words, and start writing it on the sheet.

Interviewer: Is there anything else you can think of now, even though it's a day later that you wish you had included in your report, or do you think you pretty much got everything in it that you wanted to?

Monte: Ummm/I don't think//I think I left parts out of/of/um/these two articles.

Interviewer: Do you think that was a big deal? If you could do it over again, do you think you would try to add more information, or for the report that you were writing, you were in pretty good shape?

Monte: I don't know//Cause I can just continue in the second page back there//parts that I left out/like/some of the other rules and all that//

Interviewer: mmm-hmmm/Who do you think is going to read the report? As you were writing it, who were you thinking would read it?

Monte: m m m //

Interviewer: Did you think about that much, at all?

Monte: No [shook his head no]

Interviewer: Why do you think people write reports like this?

Monte: For/like/other people//So they know/so they can find out/like/so they don't have to read the article?//So they can like read this and find out what

it was about//like if it was a book that was in the library, and it was out 'cause it was real good/and someone wrote a report, they'd just//like/have to read the report about it and then see if they liked it or not. See what it was about//and then//like/so they won't have to borrow the book and then found out they didn't like it, they could just find out before they get it.

Interviewer: If you were going to work on another draft . . . including in the class newspaper, is there anything you would do differently?

Monte: Um/I would//like/um//I'd go through it to see if I was missing any words or spell the word twice or something, and then I'd fix it up and then on a different sheet of paper//so it's all in good writing and it's all in //like nothing's wrong with it//the period's where it's supposed to be.

Interviewer: When you would fix it up so everything is right, what kinds of things . . . ?

Monte: Like, words that are double, twice, that aren't supposed to or are missing a word or spelled a word wrong or something?

Linda

Linda said she wrote about rock climbing and pretty much remembered what she wrote, but, given the option, asked to reread her paper again.

Interviewer: When you think back to the assignment from yesterday, can you tell me in your words, what do you think you were supposed to write about?

Linda: I think we were supposed to write about the story that most excites us and/um/what about the story that excited us most.

Interviewer: I noticed that you wrote just about rock climbing, but you didn't write about caving. Can you talk a little bit about why you did that?

Linda: Well/I thought caving was not very interesting//I didn't/I didn't like/I thought it was boring.

Interviewer: Do you mean that the topic, caving, was boring or did you read both of them but you just liked reading about rock climbing?

Linda: I read both of them/and I thought caving wasn't that interesting and I thought rock climbing was very interesting.

Interviewer: When you were writing your paper . . . how did you decide what you wanted to include in your report?

Linda: Well, I like to include the things that most interest me, like people that have to be really strong, so most of them lift weights//and there's belts called harnesses and that's just hooked up to a rope and there's nuts and little hooks that you push into the rocks//and tie the rope and it pulls you up and you climb the rocks.

Interviewer: Is there anything else you can think of that you wish you had included in the report now that you've had a chance to read it again?

Linda: [shook her head no]

Interviewer: When you were writing this, who did you picture would be reading it? Did you think about your audience at all?

Linda: No [giggles]

Interviewer: Okay, why do you think people write reports like this?

Linda: I don't know.

Interviewer: Any ideas at all? Why would you write a report?

Linda: I don't know//I think it's//I don't know [giggles]//

Interviewer: Why would people write a story?

Linda: Like/ tell people about things.

Interviewer: Okay, are reports and stories different? Would they have different reasons for writing a report than for writing a story?

Linda: No, I'd like the people to know what I thought was interesting about this stuff.

[continues with discussion of the nature of revisions she would make]

Randy

Interviewer: What did you think about the articles?

Randy: A-h-h-m I thought they were kinda good, A-h-h-m, a-h-h-m the thing about caving and rock climbing is there, they are not the same and both of them are hobbies and they are very dangerous and you can get hurt so, if you want to rock climb you should take a partner, because like if you fall off they could go and call the ambulance and something like that, to help you and stuff like that. And um the cave, the sun really doesn't get in the cave that much a-h-h-m because it's so dark in there and stuff and the cave is underground. It doesn't be that much, and water gets in there too. And you have to have the right equipment on to a-h-h-m have it, a-h-h-m to do that and a-h-h-m you can get hurt, and I think you should take a partner in a cave too because if it's very dark in there a-h-h-m maybe you could get lost in there and you say where I'm at, where I'm at and then maybe your partner could help you to get out or something like that.

Interviewer: O.K. Gosh! You wrote a lot of information. That's good. How did you decide on what you wanted to include in your report Randy?

Randy: From the article because a-h-h-m it really helped me 'cause when I grow up I want to be something like a geologist; I'm not sure but if you go in a cave a-h-h-m like if you go in a cave a-h-h-m you can take, you can look down in holes in the cave and stuff and that's what geologist do, they study under the cave so a-h-h-m they really gave me some more clues and stuff to be a geologist.

Interviewer: Oh boy! That's great. Alright. A-h-h-m is there anything that you wish you have included in your report that you did not include?

Randy: Well I should have included how people like it and how a-h-h-m if like if somebody goes in a cave you didn't like it or not and stuff like that.

Interviewer: You think that's important to include?

Randy: Yea, because if you a-h-h-m go into like a show or something and you say well I wrote this boring article, if you talk to other teachers about book club and they say this and say that, what the kids did, you should say how the kids like it, do you think the kids liked it or something like that.

Interviewer: Who do you think will read your report?

Randy: U - h - m ?

Interviewer: Who do you think will read your report that you wrote?

Randy: A-h-h-m, I think some of the people at MSU, and some of the other teachers maybe, and you guys, maybe teachers in school and stuff like that, like [my teacher].

Interviewer: O.K. Anyone else?

Randy: Maybe some of the college teachers, A-h-h-m, Dr. Raphael's friends, if a-h-h-m might get some more ideas that the college people can do and stuff.

[continues with talk about the nature of his revisions and why people write reports]

Larissa

Interviewer: Would you explain to me what you thought you were supposed to be writing about?

Larissa: I was supposed to be writing about polo and field hockey.

Interviewer: And what were you supposed to be doing with those? Can you just describe it?

Larissa: I'm supposed to/um/um/write something about what I can do/um/polo /like polo//I just really wanted to play polo for once/and that if I /um/ didn't make a mistake I can really, hurt somebody and/um/they can get injured and I don't wanna do that, really.

Interviewer: So, how did you decide what you wanted to include in the report that you were writing?

Larissa: Um/include/um/I grew up I would just wanted to be someone like, so I can teach/like some children//when they grow they want/they can play some games like//

Interviewer: And what gave you that idea? How did you decide you wanted to write it from that idea?

Larissa: Um/I don't know//I just think/I just thought of something and then I wrote it down.

Interviewer: Okay/um/where did you get the ideas from/ to write about/in your report?

Larissa: Uh/no one asked me that/um/so/I just made it up myself 'cause I could do it for real.

Interviewer: Okay, did you get any ideas from the articles that you read?

Larissa: Uh-huh [affirmative]

Interviewer: Okay, how did you combine ideas from the articles with the ideas from your head? It's kind of a hard question . . .

Larissa: Um-hm/um/because I just thought of something that I wrote it down/um/and I just think of more things, then I wrote it down.

Interviewer: Okay, did you//do more thinking about what ideas you had in your head/or did you think more about what ideas you read in the article? Where did you get your information mostly, do you think?

Larissa: In my head.

Interviewer: Okay, and how did you decide to do that?

Larissa: I just/um/thought/thought and thought, then I got the idea and kept on writing /um/some things down/that/it/was/a great idea/then I should do something.

Interviewer: What do you think was the best idea you had in your report?

Larissa: The best idea was everything because I just thought of something hard and some people don't know what they're going to write. Um/sometimes they can forget what they're saying and write something else down.

Interviewer: Okay, did you do that very much, or did you pretty much know what you wanted to say?

Larissa: I pretty knew what I was about to say.

Interviewer: When you were writing, who did you think would be reading your report?

Larissa: Umm/you guys I guess 'cause/um/most people can think of some ideas about what I did and some other ones who write it write something/um /things I said.

Interviewer: Okay, can you tell me a little more about that?

Larissa: Um/ I think that //I wrote down the kilts, I remembered about lots of things with kilts 'cause I saw lots of movies about kilts and /um/ that they can have lots bagpipes singing and that and I like the sounds of the bagpipe.

Interviewer: Um-hmm, and um, how did the idea about kilts come into your head?

Larissa: Kilts, because um when they said their skirts, I just remembered that/um/in a different country, that the men wore skirts and they had bagpipes too.

Interviewer: Okay, what do you think the reason why people write reports like this?

Larissa: Um/I don't know//It's just that they just come up with something and they write it down, then they think some more about what they want to write.

Interviewer: Okay, if you were going to work on another draft of this, like to publish in your class newspaper or the school newspaper, is there anything that you would do differently?

Larissa: Uh-huh//I would write something about what's gonna happen if I didn't do it right, something . . .

Interviewer: If you didn't do what right?

Larissa: Um//like hurt somebody//um/I would be bad for myself and I won't try it again.
[Note: I think she was referring to playing polo, not writing.]

Interviewer: Okay, so, what would you do differently in the way you wrote this up?

Larissa: I would write something about polo, how much fun it would be and/um / how mad I'll be if it hurts me.

Interviewer: Okay, and why would you do that differently for the school newspaper?

Larissa: Um/I'd write if I hurt somebody/um/I'll/well/I'll/be writing down something else/like soccer or something.

Interviewer: Okay, thank you Larissa, that's all.

Jennifer

Interviewer: What I'm going to do is ask you questions about what you did there [in discourse synthesis paper]. Can you just tell me, for the tape recorder when we write it up later, what were you supposed to write about?

Jennifer: /Um/like/um/what kind of things were/like/the same in both stories, and things that were different.

Interviewer: And how did you decide what to include in your report?

Jennifer: /Um/well they said that both of them were dangerous, I put that, them two were the same because they both have it, they were dangerous/and/um/ and then um/they have to wear special equipment. In both stories the people that go rock climbing and caving, they always have to use/um/wear/special equipment.

Interviewer: Okay, when you were writing, I know you didn't copy or write down everything that was in both passages? Um, how did you make a decision about what to include?

Jennifer: [pause] /um/when I read them both, and I see they had dangerous in both of them, and they had to wear special equipment, but the equipment that they wore was different, cause some were leather and some had to wear/um/um/um/rubber boots to keep their feet dry//and/um/they had to wear leather

Interviewer: Now, did you write all of that in your report? About the leather boots and things like that?

Jennifer: uh-unh

Interviewer: Okay, how did you decide then, what to put in your report and what not to put in, like about the leather boots?

Jennifer: I put the/on one/they both the same because they both have to wear special equipment, but the equipment that they would wear are/um/different from one another//

Interviewer: Okay, and why didn't you put in something about, like the leather shoes and stuff?

Jennifer: Mmmm/I don't know.

Interviewer: Okay, were there any other details like that that you thought about when you were writing your report, but then, it wasn't something that you would necessarily put in your report?

Jennifer: [pause of at least 30 seconds]

Interviewer: Let me ask it a different way. Is there anything else you can think of from yesterday when you were reading that you wish you could include in your report now//or that you'd want to//or that you left out?

Jennifer: Um/probably that the caving are really large, and um, the caves are really large, and have big holes, and/um/and/um it takes about a, um, I think it was about, about 5 or 3, 5 - 3 years for a cave to form together.

Interviewer: And why do you think that is important? Why might you include that?

Jennifer: Because, probably, um people that read my, what I wrote, would probably want to know, like, a little bit about how, how caves, how we get caves and all that.

Interviewer: I keep asking you this in different ways, but I'm really trying to understand how people decide when you have ideas from the story or you're reading it, how you decide what to put in and what not to put in. Were there other things? Like did you talk about the clothes that they wore?

Jennifer: uh-unh

Interviewer: Okay, um, was that because . . . do you know why you didn't talk about that?

Jennifer: I was going to put it in but I decided just to put that the, um, equipment that they wore were different.

[continues probing about why]

Jennifer: [pause of about 30 seconds again] I didn't want to make it, like, that way, would be like a little long, so I just put um, that they wore different equipment, like they wore more different clothing.

Interviewer: Why for this one wouldn't you want it to be very long? Why do you think that would be important?

Jennifer: Well, first I decided to put things that are alike, then I went to things that are different, and/um/and/um/and/um/those I only need to think about two was that they wore different equipment and they both took place in different places, cause one takes in caving and the other in rock climbing, and then, um, I went to, um, for the last part I put that/um/they say that the hobbies are very fun, but, they say that the hobbies are very fun to do and I think that they would learn more about it.

Interviewer: Yeah, I liked your ending. When you were doing the writing part of it, did you look back into the articles, or did you, um, read the articles and put them aside and then do the writing?

Jennifer: Um/I read the caving first, and then I read rock climbing, and then I put it aside and started writing.

Interviewer: Do you think if you'd looked back in it to get other ideas you might have written more, or do you think that if you'd look back in it you pretty much knew what you wanted to write so it wouldn't have mattered.

Jennifer: If I probably looked, I probably would have wrote more, but . . .

Interviewer: How come you didn't look back? Did you know you could?

Jennifer: I thought about it but/um/when I was reading through both articles, and I already/had a mind/ I already knew in my mind what I thought I was going to write.

Interviewer: So you didn't feel like you really needed to go back?

Jennifer: [shakes head no]

Interviewer: Who do you thinks going to read your report?

Jennifer: Probably you [laughs]

Interviewer: Is there anyone else you had in mind while you were writing this?

Jennifer: Um/probably [former teacher], I mean, not [former teacher], [my teacher]/

Interviewer: Why do you think people write reports like this? Kids in school? Grownups?

Jennifer: Probably they have/like/kids in school have a book report to write about/ they have to write their own book report, and they probably picked caving or something.

Interviewer: Look over your report for just a minute. If you were going to work on another draft, a second draft of this . . .

Jennifer: I would probably try to add a little bit more about what kind of equipment and describe the caves and what makes them so fun and exciting and I'd probably do the same for/um/rock climbing/to/um/tell them that rock climbing is fun//but you gotta watch out//and you need another partner to come with you 'cause/um/it can be very dangerous at times.

Interviewer: And why would you include that information?

Jennifer: That way, if they ever went caving or rock climbing they would know/um/what kind of equipment to use and the/um/they would have to have two of them, or they need like two pairs to go. That way, if you/like/ 'cause when you go rock climbing you have to have a rope and you have to push the other person up too, that's why it's important to have a partner with you.

Joshua

Interviewer: This is Joshua. Joshua what did you think about the two articles?

Joshua: I thought about they were good because had to a-h-h-m, I started reading the polo first, and then when I got done [inaudible], I started, I started writing about it, 'cause sometimes I forget what, like if I read polo and then I read [inaudible] and then I forget about polo; it's hard to start writing; and then after polo I wrote about this.

Interviewer: Uhhm. And then you read the field hockey?

Joshua: Uhh Huum

Interviewer: And then you wrote about that?

Joshua: Uhh Huum

Interviewer: Joshua can you tell me what you, what were you supposed to write about do you think?

Joshua: I just wrote about how you supposed to play the games, I wrote about that, what you were supposed to wear.

Interviewer: Anything else?

Joshua: I was supposed about what we thought was good, about anything we read.

Interviewer: Anything else?

Joshua: So I started writing about things that you wear and how you play the game, like you use a stick to hit the ball, and then it can go inside the goal. And then you have to try and pass it to your team mate [continues to talk about some of the steps].

Interviewer: How did you decide what you wanted to include in your report?

Joshua: I wanted to put interesting stuff, so that it would be interesting. And then in the second one there was supposed to be girls in it and then in the first one it was supposed to be men. So and a-h-h-m, the the hockey game, field hockey was girls and the polo thing was boys, men.

Interviewer: Is there anything else Joshua that you think, that you wish, that you can think about that you wish you had included in your report?

Joshua: I was puttin' as many as things as I could, so I started putting lots of things I tried to get more in the first one, and then I got more in the second one than the first one, so I tried to get more in the first one just like the second one. So I got all this on that page full, and this page. So I had more in the hockey game than the polo game.

Interviewer: Now Joshua, who do you think is going to read your report?

Joshua: I don't know.

Interviewer: Take a guess? Who would you like to read your report?

Joshua: I don't know.

Interviewer: Don't know? O.K. Let's come back to that question, alright? What do you think is the reason people write reports just like the one you wrote?

Joshua: So they can put it in a book. So that they can make a little book about it. So they want to put it in a book so everyone could read it. So it could be everyone instead of just one person.

[continues with discussion of audience]

Eva

- Interviewer: What did you think about the articles, Eva?
- Eva: Ahhm, I thought that they were pretty interesting 'cause I didn't really know anything about 'em.
- Interviewer: Oh. So you got some new information today?
- Eva: Yea.
- Interviewer: How did you decide to write your report?
- Eva: Ahhm, basically I was thinking about what was the differences between the two things. And what were the alike.
- Interviewer: O.K. And what else?
- Eva: Ahhm.
- Interviewer: Is that the most you thought about? What were the differences and what were the alike?
- Eva: Mostly of it.
- Interviewer: Is there anything else that you wished you had included in your report besides the differences and the alike?
- Eva: Ahhm
- Interviewer: Can't think of anything? Can you tell me what you think you were supposed to do, or what you were supposed to write about?
- Eva: Ahhm , [inaudible] almost like pick your own assignment, to relate to what you read. We were supposed to write about a-h-h-m, I just took a guess.
- Interviewer: Who did you think would read your paper as you wrote it?
- Eva: Dr. R, I'll bet, and I'm pretty sure that it might go down to this other place where some other people will read it. I'm not sure where the place is though.
- Interviewer: O.K. Anybody else?
- Eva: No. Probably you.
- Interviewer: O.K. Yea, I probably will read it. Ahhm, what do you think is the reason people write reports like the one you just wrote?
- Eva: To let someone else know like do you really understand what you were reading.

Interviewer: O.K. Anything else. Can you think of any other reasons people might write reports such as the one you just wrote?

Eva: To keep information inside your mind?

Interviewer: O.K. That's a neat answer. Anything else? Any other reason? Now Eva can you take a few seconds, and look over your report, and think about what you would do for a draft . . .

Eva: I'd probably write more, because this wasn't actually my best.

Interviewer: O.K. If you wanted to write more, what else would you include?

Eva: I would probably include what it's like inside a cave, and the little things I didn't include the first time.

Interviewer: Can you think of some things that you didn't include that you would put in your next draft?

Eva: Yea, like on rock climbing, I didn't put in the harness, or the metal hooks called nuts, they would probably think that that was pretty interesting.

Interviewer: O.K. And what about for caving?

Eva: Caving?

Interviewer: Uhhm.

Eva: Maybe I should include that it's dark and wet inside, maybe they don't know that, maybe they think that they sun shines in it, it's a lot of light.

Interviewer: Anything else in caving that you think you would include in your draft?

Eva: No.